

**REMARKS**

On an initial note, the Applicant wishes to thank the Examiner for pointing out that the claims did not positively claim that the retroreflective ink was reactive when the curing step is carried out, claim 57 and 82 have been amended accordingly. New claims 118 and 119 have been added. The Applicant submits that these minor amendments and corrections herein are made without prejudice as to patentability, including the doctrine of equivalents, and no new matter has been added.

**Claims 57, 59, 61, 64-73, 114, and 116 are Nonobvious**

The Examiner rejected Claims 57, 59, 61, 64-73, 114, and 116 under 35 U.S.C. 103(a) as being unpatentable over JP 02-043275 in view of Rizika et al., U.S. Patent 5,650,213. Applicant respectfully disagrees.

JP '275 discloses an ink composition for printing sterilizable laminate film, the ink comprising *organic solvent*-soluble linear polyurethane resin and a blocked isocyanate compound (principal binder). According to the JP '275 Derwent abstract,

[t]he laminate film printed with the ink composition is useful for packaging foods, medical tools etc. which have to withstand sterilization. Films *printed* with the ink composition have improved storage stability and generate no blocking phenomena due to storing in roll form. [The l]aminated sheet of this [sic] *printed* film gives no separation [sic] between constitution films and blistering caused by sterilization.

JP '275 Derwent abstract (emphasis added).

From this limited description, it is apparent the problem faced by JP '275 was the need for an ink that when *printed* on a film has improved storage stability and generates no blocking phenomena.

In contrast, the Applicant's invention is a combination of ingredients forming retroreflective ink including retroreflective elements and/or microbeads, especially used on, for example, fabric substrates, such as those forming articles of clothing, having high reflectivity,

washfastness, and abrasion resistance. The retroreflective ink includes (1) binder chemicals for attaching the retroreflective elements and microbeads to a substrate to which the ink is to be applied, and a (2) coupling agent for coupling the microbeads and cross-linking the binder chemicals. Uniquely, the coupling agent is unreactive and uncured until a curing step is carried out and reactive when the curing step is carried out during which the temperature of the substrate and ink applied to the substrate is elevated to between 60 and 200°C. The coupling agent has a storage life of not less than about 3 months ambient temperatures.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. MPEP 706.02(J) (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

**No Suggestion or Motivation to Combine References**

Applicant respectfully submits that there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to accomplish Applicant's present invention.

JP '275 requires that a polyurethane resin be dissolved in an *organic solvent* (see abstract), whereas Rizika et al. requires a non-volatile film-forming emulsion which can include urethane polymers, mixed with a volatile constituent (see col. 2, lines 39-46 and col. 8, lines 22-32). Rizika et al. requires a "volatile constituent," the only explicit teaching of which is that col. 8, lines 22-32, which teaches the use of water as the volatile constituent. This is further confirmed by the only example in the application at col. 15, line 26, which teaches a retroreflective composition comprising 63.80% water by volume. Thus, Rizika et al. teaches an aqueous phase component which is *incompatible* with the JP '275 organic solvent.

That is, neither JP '275 nor Rizika et al. teach or suggest the desirability of such a modification as would be required by their combination. In particular, Rizika et al teaches the use of water, whereas JP '275 teaches the use of an organic solvent. As such, they explicitly teach against their combination with one-another. Stated another way, the methodologies of JP '275 and Rizika et al. are so diametrically opposed that each explicitly teaches away from the methodology of the other. Thus, the Applicant respectfully submits that with such a significant difference between the methodologies of the two patents, there can be no reason or incentive for a person of ordinary skill in the art to combine them.

Not only is there nothing explicit in either of the two references that would suggest combining them, there is also nothing implicit suggesting combining the references, as the combined teachings, knowledge of one of ordinary skill in the art, and nature of the problem to be solved, as a whole, would not suggest doing so to those of ordinary skill in the art, as is required in MPEP 2143.01 and *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). JP '275's problem involved the need to produce an ink composition that could be printed on a laminate film typically used for packaging foods, medical tools, etc., which could withstand a sterilization process utilized on such foods, medical tools, etc. Rizika et al.'s problem involved the need to produce a reflective treatment for garments that would provide an inconspicuous daytime appearance and night-time reflectivity.

Thus, the combined teachings of the cited references, knowledge of one of ordinary skill in the art, and nature of the problem to be solved, as a whole (producing a retroreflective ink having a long shelf life prior to application to a substrate), does not suggest combining the two cited references, as the combination would not solve the Applicant's problem.

Even if the references somehow could be combined or modified, this still is not sufficient to establish a *prima facie* obviousness unless the prior art also suggests the desirability of the combination. See MPEP 2143.01 (citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) and *In re Fritch*, 972 F.2d 1260, 23 USPQ2d 1780 (Fed. Cir. 1992)). Not only is there no suggestion as to the desirability of the combination, discussed *supra*, but also the combination would not in fact be desirable, as will be discussed *infra*.

Also, the statement, alone, that “[i]t would have been obvious . . . to have incorporated retroreflective beads as taught by Rizika et al. into the composition of JP '275,” is insufficient to

establish a *prima facie* case of obviousness, even assuming the combination would not destroy or render useless portions of JP '275. Also, even assuming a motivation and an ability to combine the references, MPEP 2143.01 states: "the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness," and no additional documentary evidence has been shown.

Further, the proposed modification (employment of microbeads of Rizika in the ink of JP '275) cannot, but does, render JP '275 unsatisfactory for its intended purpose and/or changes the principal of operation of JP '275, against the requirements of MPEP 2143.01. For example, assuming the sterilization employed ultraviolet light or some other form of radiant energy, the retroreflective microbeads would tend to degrade the sterilization of the product encased within the laminate film, blocking or reflecting such energy back to the energy source.

**No Reasonable Expectation of Success**

The Applicant respectfully submits that the second element of a *prima facie* case for obviousness has not been met because there must be, and there is not in this present case, a reasonable expectation of success. From the discussion *supra*, and the one to follow, *infra*, one would realize that the combination of the two prior art references will not produce a retroreflective ink that includes a coupling agent having a storage life of not less than about 3 months and that is unreactive except at the elevated temperature (60 and 200°C) of a curing step.

**All Claim Limitations Are Not Taught or Suggested**

Finally, the Applicant respectfully submits that the third element of a *prima facie* case for obviousness has not been met because all claim limitations are not taught or suggested.

Even if there was a suggestion or motivation to combine the cited references, the combination would be missing at least one, if not more, elements of Applicant's presently claimed invention. Specifically, no combination of the cited references shows a coupling agent that: (a) has a storage life of not less than about three months; (b) is unreactive except at the elevated temperature of between 60 and 200°C, at which temperature a one-pack retroreflective ink applied to the substrate is cured; or (c) reactive when the curing step is carried out. Thus, the present invention as claimed is distinguishable.

Specifically, with respect to independent Claim 57 (and claim 82), JP '275 discloses a "laminate ink composition comprising a mixture of an organic solvent-soluble linear polyurethane resin with . . . [a blocked] isocyanate compound . . . as the principal binder" apparently to bind the ink to a laminate film. The Applicant's claim features a combination of ingredients forming a retroreflective ink comprising binder chemicals for attaching retroreflective elements and microbeads to a substrate to which the ink is to be applied, and a coupling agent (aminoalkyl silanetriol and/or a blocked polyisocyanate) for coupling the microbeads and cross-linking the binder chemicals. Note, JP '275 does not explicitly identify a separate binder and coupler agent.

The Examiner states that "[t]he JP '275 reference does not explicitly teach that the coupling agent is unreactive until it is at elevated temperature and does not disclose the storage life of the coupling agent." The Examiner further states that: "but since JP '275 employs the same type of coupling agent, *presumably* the JP '275 coupling agent would have the same property. . . . [and that] since JP '275 teaches employing a blocked isocyanate coupling agent, *presumably* the JP '275 ink would possess the claimed properties."<sup>1</sup> *See* office action, p. 2, para. 1 (emphasis added). The Applicant respectfully disagrees.

Although there are similarities between the ink composition described in JP '275 and the combination of ingredients forming a retroreflective ink featured in claim 57, they are nevertheless different chemical compositions. One of ordinary skill in the art would not "assume" or automatically "presume" identical physical properties.

More specifically, because of the differences in the chemical compositions, one of ordinary skill in the art would not automatically presume (a) that the laminate ink composition described in JP '275 has a storage life of not less than about three months; (b) that the laminate ink composition described in JP '275 is unreactive except at the elevated temperature of between 60 and 200°C, or (c) the ink composition described in JP '275 is reactive when a curing

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<sup>1</sup> Note also, Rizika et al. was introduced to support a teaching that "retroreflectively coated microbeads may be included in ink compositions." *See* office action, p. 2, para. 1. Thus, the presumption that the JP '275 would possess the claimed properties is tantamount to reliance on "common knowledge" as described in MPEP 2144.03, which although appropriate under some limited circumstances, is not appropriate here without evidentiary support in the record, because it is the principal evidence upon which a rejection was based. *See* MPEP 2144.03 (*citing In re Zurko*, 258 F.3d 1379, 1385, 59 USPQ2d 1693, 1697 (Fed. Cir. 2001)).

step is carried out. These are important features there were not identified as objectives to be obtained or problems to be solved by the cited patents.

Thus, as each and every claim limitation is not taught or suggested, the Applicant respectfully submits that claim 57 (and claim 82) has been shown to be allowable and define over the cited art. Correspondingly, dependent claims 59, 61, 64-73, 114, and 116, (and claims 83-105, 115 and 117) are also shown to be allowable. Therefore, the Applicant respectfully requests reconsideration.

Further, specifically regarding claims 61 and 94, claim 61 is dependent upon independent claim 57 and claim 94 is dependent upon independent claim 82, thus, both claims should be allowable.

Further, specifically regarding claim 116, in addition to being dependent upon independent claim 57 and dependent claims 67 and 68, the claim is independently novel because Rizika et al. does not teach or suggest retroreflective beads composed of titanium glass or barium glass.

Still further, regarding new claims 118 and 119, neither reference further teaches or suggests a coupling agent being selected from a group consisting of an aminoalkyl silanetriol and a combination of aminoalkyl silanetriol and blocked polyisocyanate.

#### **Claim 62 is Nonobvious**

The Examiner rejected Claim 62 under 35 U.S.C. 103(a) as being unpatentable over JP 02-043275 in view of Rizika et al. as applied to claims 57, 59, 61, 64-73, above, and further in view of Yoshida et al., U.S. Patent 4,985,484. Applicant respectfully disagrees.

Claim 62 is dependent upon independent claim 57 and is therefore also shown to be allowable. Further, the Applicant believes that the Examiner may have misinterpreted the claim such that the claimed combination consists of less than 50% microbeads. The claim, however, requires that the *volume ratio* of the binder to the microbeads is equal to or less than 50%, i.e. having a volume ratio less than or equal to a 1:2. Yoshida et al. teaches at col. 5, lines 47-61 that a printing ink vehicle may be used comprising as little as 45% microcapsules. Yoshida et al. does not teach or suggest a binder-to-microbead volume ratio, and more particularly, does not

teach a binder-to-microbead volume ratio of equal to or less than 50%. Therefore, Applicant respectfully requests that the rejection be withdrawn.

**Claims 63, 69, 82-105, 115, and 117 are Nonobvious**

The Examiner rejected Claims 63, 60 (presumably 69), 82-104, 115, and 117 under 35 U.S.C. 103(a) as being unpatentable over JP 02-043275 in view of Rizika et al. as applied to claims 57, 59, 61, 64-73, and 116, above, and further in view of WO 95/14248. Applicant respectfully disagrees.

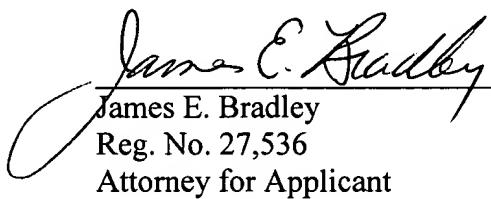
Claims 63, 60, and 69 are dependent upon independent claim 57 and are therefore also shown to be allowable. Claims 83-105, 115, and 117 are dependent upon independent claim 82, and therefore also should be allowable, claim 82 having novel and nonobvious features similar to that of claim 57.

That is, claim 82 is nonobvious for the reasons described with respect to claim 57, i.e., there is no suggestion or motivation, either in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; there is no reasonable expectation of success; and the cited references do not teach or suggest all the claim limitations. The inclusion of WO 95/14248 does not provide additional information that would motivate one of ordinary skill in the art to combine JP '275 with Rizika et al., nor does it fill any of the gap missing between JP '275 and Rizika et al. with respect to independent claim 82 (and independent claim 57) regarding the requirement to teach or suggest all claim limitations.

**CONCLUSION**

In view of the remarks set forth herein, Applicant respectfully submits that the claims are novel and nonobvious and that the application is in condition for allowance. Accordingly, reconsideration of the application and the issuance of a Notice of Allowance in due course is respectfully requested.

Respectfully submitted,

  
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